Annual Drinking Water Quality Report

The City of Crisfield, Maryland/ 2008
PWSID# 0190001

We're pleased to present this year's Annual Drinking Water Report. This report is designed to inform you about the quality water and services we deliver to you every day. Our constant goal is to provide you with a safe and dependable supply of drinking water. We want you to understand the efforts we make to continually improve the water treatment process and protect our water resources. We are committed to ensuring the quality of your water. The source of our drinking water is several Aquifers which are the Maggothy, Paleonce, and Raritan, which lie about 900 to 1320 feet below the earth's surface. An aquifer is a sort of underground reservoir or deposit of water, which is tapped by drilling wells and pumping the water to the surface for distribution. The 900 feet of earth between surface sources of contamination and these underground rivers helps to purify the water before it actually reaches the aquifer, making it easier for us to treat before we pump it into the water distribution system.

We are pleased to report that our drinking water is safe and meets federal and state requirements. The following report is provided in compliance with federal regulations and has been provided annually since 1999. This report outlines the quality of our finished drinking water and what that quality means. Some people may be more vulnerable to contaminants in drinking water than the general population. Immun.-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by crypto sporidium and other microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

If you have any questions about this report or concerning your water utility, please contact Public Utilities Director Harold Frock at 410-968-1303**.** We want our valued customers to be informed about their water utility. If you want to learn more, please attend any of our regularly scheduled Mayor and Council meetings. The City of Crisfield's Water Department routinely monitors for contaminants in your drinking water according to Federal and State laws. The tables on the following pages show the results of our monitoring for the period of January 1st to December 31st, 2008. As water travels over the land or underground, it can pick up substances or contaminants such as microbes, inorganic and organic chemicals, and radioactive substances. All drinking water, **including bottled** drinking water, may be reasonably expected to contain at least small amounts of some contaminants. It's important to remember that the presence of these contaminants does ***not necessarily*** pose a health risk.

Definitions

In this report you will find many terms and abbreviations you might not be familiar with. To help you better understand these terms we've provided the following definitions:
Non-Detects (ND) - laboratory analysis indicates that the constituent is not present.
Parts per million (ppm) or Milligrams per liter (mg/l) - one part per million corresponds to one minute in two years or a single penny in $10,000.

Parts per billion (ppb) or Micrograms per liter - one part per billion corresponds to one minute in 2,000 years, or a single penny in $10,000,000.

Action Level - the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Treatment Technique (TT) - A treatment technique is a required process intended to reduce the level of a contaminant in drinking water.

Maximum Contaminant Level - The "Maximum Allowed" (MCL) is the highest level of a contaminant that is allowed in drinking water. MCL are set as close to the MCLG as feasible using the best available treatment technology.

Maximum Contaminant Level Goal - The "Goal "(MCLG) is the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLG allow for a margin of safety.

Non-Detected Contaminants

Following is a list of potential drinking water substances that the City of Crisfield is required to test for, but which have **not** been detected in the water supply in the past year. The Town is only required to provide information on those substances it has detected in the finished water supply, but is providing a list of some of the non detected contaminants in each well in order to better inform its customers about the extent of testing that is done to their water supply. The following wells *01 Jersey *02 Broadway *03 Park, *04/05 Jacksonville & Md. Avenue were tested for the following contaminants but none were detected.

Contaminant	Level Detected
1. P-Isopropyl toluene	N/D
2. Chloromethane	N/D
3. Dichlorodifluoromethane	.N/D
4. Bromo methane	N/D
5. m-Dichlorobenzene	N/D
6. Trichlorofluoromethane	N/D
7. Hexachlorobutadiene	N/D
8. Naphthalene	N/D
9. Methyl-Tert-Butyl-Ether	N/D
10. Coliform /Total	N/D
11. 1,2,4,-Trichlorobenzene	N/D
12. Cis-1,2-Dichloroethylene	N/D
13. Dibromomethane	N/D
14. 1.,1-Dichloropropene	N/D
15. Monochlorobenzene	N/D
16. 1,3-Dichloropropene	N/D
17. 1,2,3-Trichloropropane	N/D
18. 2,2-Dichloropropane	N/D
19. 1,2,4-Trimethylbenzene	N/D
20. 1,2,3-Trichlorobenzene	N/D
21. N-Butyl benzene	N/D
22. 1,3,5-Trimethylbenzene	N/D
23. Tert- Butyl benzene	N/D

Contaminant	Level Detected
24.Sec-Butyl benzene	N/D
25.Bromodichloromethane	N/D
26 N-Propylbenzene	N/D
27.Bromoform	N/D
28.Bromodichloromethane	N/D
29.Dibromochloromethane	N/D
30.Ethylbenzene	N/D
31M-Xylene,l	N/D
32.p-xylene	N/D
33.Methylene Chloride	N/D
34.O-Chlorotoluene	N/D
35.P-Chlorotoluene	N/D
36.M-Dichlorobenzene	N/D
37.O-Dichlorobenzene	N/D
38.P-Dichlorobenzene	N/D
39.Vinyl-Chloride	N/D
40.1,1-Dichloroethylene	N/D
41.1,1-Dichloroethane	N/D
42.trans-1,2-Dichloroethylene	N/D
43.1,2-Dichloroethane	N/D
44.1,1,1-Trichloroethane	N/D
45.Carbon Tetrachloride	N/D
46.1,2-Dichloropropane	N/D

Detected Contaminants NOT in Violation of the MCL

In addition to these un-detected substances that were subject to testing, the Town did find some regulated substances present in the water system at levels below the maximum allowable level (MCL) which is determined safe by the EPA. These substances are shown below, along with the MCL and MCLG for each one detected.

Plant ID: 01 Jersey Well #03

Contaminant	Level Detected	Unit of Measurement	MCLG	MCL	Likely Source of Contamination
1. Antimony	<. 001	ppb	6	6	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder
2. Arsenic	<.001	ppb	n/a	50	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
3. Beryllium fineries	<.0005	ppb	4	4	Discharge from metal and coal-burning factories; discharge from electrical, aerospace, and defense industries
4. Cadmium	<. 0005	ppb	50	50	Geological mining and smelting
5. Chromium	<.001	ppb	100	100	Discharge from steel an pulp Mills; erosion of natural deposits
6. Copper from Wood preservatives	< 0. 06	ppb	1.3	Al-1.3	Corrosion of household plumbing Systems; erosion of natural Deposits; leaching
7. Fluoride	2.35	ppm	4.0	4.0	Geological /natural forming
8. Lead plumbing Systems; erosion of natural deposits	<. 005	ppb	0	Al+15	Corrosion of household
9. Nitrates (as Nitrogen)	<1.0	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
10. Selenium	<. 005 N/D	ppm	0	0.05	Geological naturally Forming and mining
11.Sodium	342	ppm	N/A	N/A	Geological & natural Forming salt formations
12.Thallium	<. 001	ppm	0.5	2	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories

Detected Contaminants NOT in Violation of the MCL

In addition to these un-detected substances that were subject to testing, the Town did find some regulated substances present in the water system at levels below the maximum allowable level (MCL) which is determined safe by the EPA. These substances are shown below, along with the MCL and MCLG for each one detected.

Plant ID: 02 Broadway Well #06

Contaminant	Level Detected	Unit of Measurement	MCLG	MCL	Likely Source of Contamination
1. Antimony	<. 001	ppb		6	6 Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder
2. Arsenic	<.001	ppb	n/a	50	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
3. Beryllium	<.0005	ppb	4	4	Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries
4. Cadmium	<.0005	ppb	50	50	Geological mining and smelting
5. Chromium	<.001	ppb	100	100	Discharge from steel an pulp Mills; erosion of natural deposits
6. Copper	<. 05	ppb	1.3	Al-1.3	Corrosion of household plumbing Systems; erosion of natural Deposits; leaching from Wood preservatives
7. Fluoride	2. 5	ppm	4.0	4.0	Geological /natural forming
8. Lead	<. 005	ppb	0	Al+15	Corrosion of household plumbing Systems; erosion of natural deposits
9. Nitrates (as Nitrogen)	<1. 0	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
10. Selenium	<. 005	ppm	0	0.05	Geological naturally Forming and mining
11.Sodium	2 6 0	ppm	N/A	N/A	Geological & natural Forming salt formations
12.Thallium	<. 001	ppm	0.5	2	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories

Detected Contaminants NOT in Violation of the MCL

In addition to these un-detected substances that were subject to testing, the Town did find some regulated substances present in the water system at levels below the maximum allowable level (MCL) which is determined safe by the EPA. These substances are shown below, along with the MCL and MCLG for each one detected.

Plant ID: 03 Janes Island Well #07

Contaminant	Level Detected	Unit of Measurement	MCLG	MCL	Likely Source of Contamination
1.Antimony	<. 001	ppb	6	6	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder
2. Arsenic	<.001	ppb	n/a	50	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
3. Beryllium	<. 0005	ppb	4	4	Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries
4. Cadmium	<. 0005	ppb	50	50	Geological mining and smelting
5. Chromium	<. 001	ppb	100	100	Discharge from steel an pulp Mills; erosion of natural deposits
6. Copper	<. 05	ppb	1.3	Al-1.3	Corrosion of household plumbing Systems; erosion of natural Deposits; leaching from Wood preservatives
7. Fluoride	2.0	ppm	4.0	4.0	Geological /natural forming
8. Lead	. 005	ppb	0	Al+15	Corrosion of household plumbing Systems; erosion of natural deposits
9. Nitrates (as Nitrogen)	<1. 0	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
10. Selenium	<. 005	ppm	0	0.05	Geological naturally Forming and mining
11.Sodium	288	ppm	N/A	N/A	Geological & natural Forming salt formations
12.Thallium	<. 001	ppm	0.5	2	Leaching from ore-processing sites; discharge from ectronics, glass, and drug factories

Detected Contaminants NOT in Violation of the MCL

In addition to these un-detected substances that were subject to testing, the Town did find some regulated substances present in the water system at levels below the maximum allowable level (MCL) which is determined safe by the EPA. These substances are shown below, along with the MCL and MCLG for each one detected.

Plant ID: 04 Jacksonville/ Maryland Avenue Wells #05

Contaminant	Level Detected	Unit of Measurement	MCLG	MCL	Likely Source of Contamination
1.Antimony	<. 001	ppb	6	6	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder
2. Arsenic	< .001	ppb	n/a	50	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
3. Beryllium	<. 0005	ppb	4	4	Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries
4. Cadmium	<. 0005	ppb	50	50	Geological mining and smelting
5. Chromium	<. 001	ppb	100	100	Discharge from steel an pulp Mills; erosion of natural deposits
6. Copper	< 0. 05	ppb	1.3	Al-1.3	Corrosion of household plumbing Systems; erosion of natural Deposits; leaching from Wood preservatives
7. Fluoride	2 .39	ppm	4.0	4.0	Geological /natural forming
8. Lead	<. 005	ppb	0	Al+15	Corrosion of household plumbing Systems; erosion of natural deposits
9. Nitrates (as Nitrogen)	<1.0	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
10. Selenium	<. 005	ppm	0	0.05	Geological naturally Forming and mining
11.Sodium	377	ppm	N/A	N/A	Geological & natural Forming salt formations
12.Thallium	<. 001	ppm	0.5	2	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories

For nitrates and the other constituents that were detected at levels lower than the allowable

MCL, it is important to understand that the EPA has determined that drinking water IS safe at these allowable levels.

MCL's is set at very stringent levels. To experience the possible health effects described for many of the regulated contaminants, a person would have to drink 2 liters of water every day containing a constituent at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect.

The City also checks for Total coliform in the distribution system each month at five different sites. This is a requirement and also helps assure safe quality water for you the consumer as does this entire test done on the Cities Water system.

The City also checks for fluoride in its wells each year and if the results are above 2.0ppm the secondary standard for fluoride then this notice has to be issued. The purpose of the notice is to provide information about the fluoride concentration and its potential effects in the drinking water supplied by the City of Crisfield. Recent sampling indicates that the secondary standards for fluoride continue to be exceeded in the water supplied by the City.

The wells supplying the water to the City of Crisfield are from 900 to 1455 feet deep. The aquifers that supply the water are known as the Potomac Group and the Brightseat formations. Between the land surface and the deep aquifers are several layers of natural clay materials. These layers protect the aquifers from contamination that may come from the land surface. Compared to many other wells used for water supplies, these wells have a very high degree of protection from man-made contamination. As a result, the chemical constituents in the water provided by these deep wells are naturally occurring.

The most recent samples collected measured 2.25 milligrams per liter (mg/l). Consequently the U.S. EPA requires that suppliers of water provide the following language in this public notice regarding the potential effects of consuming water in excess of the secondary standard. The secondary standard is based on aesthetics and is not a health concern.

Federal regulations require that fluoride, which occurs naturally in your water supply not exceed a concentration of 4.0 mg/l in drinking water. This is an enforceable standard called a Maximum Contaminant level or (MCL), and it has been established to protect the public health. Exposure to drinking water levels above 4.0 mg/l for many years may result in some cases of crippling skeletal fluorosis, which is a serious bone disorder.

Federal law also requires that we notify you when monitoring indicates that the fluoride in your drinking water exceeds 2.0 mg/l. This is intended to alert families about dental problems that might affect children under nine years of age. The fluoride concentration of your water exceeds this guideline.

Fluoride in children's drinking water at levels of approximately 1 mg/l reduces the number of dental cavities. However some children exposed to levels of fluoride greater than about 2.0 mg/l may develop dental fluorosis. Dental fluorosis in its moderate and severe forms is a brown staining and/or pitting of the permanent teeth.

Because dental fluorosis occurs only when developing teeth (before they erupt from the gums) are exposed to elevated fluoride levels. Households without children are not expected to be affected by this level of fluoride. Families with children under the ages of nine are encouraged to seek sources of drinking water for their children to avoid the possibility of staining and pitting on their teeth.

Your water supplier can lower the concentrations of the fluoride in the water so that you will still receive the benefits of cavity prevention while the possibility of stained and pitting is minimized. Removal of fluoride will increase your water cost. Treatment systems are also commercially available for home use. Information on such systems is available at the address given at the end of this report.

All drinking water, including bottled water, may reasonably be expected to contain at least

small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791.

The presence of some contaminants in drinking water is unavoidable, but we make every effort to keep our water at or below the levels specified by law as being safe for consumption. Our Water Department staff consists of three operators who have a combined experience of more than 30 years between them. Together they have attended more than 20 hours of Continuing Education training in the past year in an effort to keep up-to-date with the latest in water treatment techniques to provide you with the best quality water possible. The provision of quality water is an on-going effort for the City of Crisfield and its staff. And is an area in which we are continuously trying to improve upon.

The City also did the required lead & copper testing for 2005 and the results of the test are as followed. The 90th percentile value for the lead test was a (non-detected and the 90th percentile for the copper test was a 0.06 mg/l which was both below the allowable standards. The city had tested twenty sites and out of these sites had no results over the action levels on either the lead or copper samples. The City will test again this year during the summer for Lead and Copper .

In our continuing efforts to maintain a safe and dependable water supply it may be necessary to make improvements in your water system. The costs of these improvements may be reflected in the rate structure. Rate adjustments may be necessary in order to address these improvements. We must set our water rates so that the system pays for itself without subsidy from property tax revenues. In this way, the cost of the water service can be borne by those who actually use water rather than just by the property owners.

Thank you for allowing us to continue providing your family with clean, quality water this year. In order to maintain a safe and dependable water supply we sometimes need to make improvements that will benefit all of our customers. These improvements are sometimes reflected as rate structure adjustments. This report is also available at the Library, Post office , City Hall and on Line at the City of Crisfield,s Web site @ City of Crisfield.com for review. Thank you.

Crisfield Town Hall – 319 Main Street
Phone -410-968 -1333
FAX – 410-968-2167

Crisfield Public Utilities Dept. – 104 7th St.
Phone – 410-968-1303
FAX - 410-968-2167
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